ABSTRACT OF THE DISCLOSURE

A semiconductor device and its manufacturing method. The semiconductor device has a semi-insulating GaAs substrate 310, a GaAs buffer layer 321 that is formed on the semi-insulating GaAs substrate 310, AlGaAs buffer layer 322, a channel layer 323, a spacer layer 324, a carrier supply layer 325, a spacer layer 326, a Schottky layer 327 composed of an undoped $In_{0.48}Ga_{0.52}P$ material, and an n^+-type GaAs cap layer 328. A gate electrode 330 is formed on the Schottky layer 327, and is composed of LaB_6 and has a Schottky contact with the Schottky layer 327, and ohmic electrodes 340 are formed on the n^+-type GaAs cap layer 328.